

## **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

- 1        1. (Currently Amended) A method for executing a fail instruction to  
2 facilitate transactional execution on a processor, comprising:  
3            transactionally executing a block of instructions within a program;  
4            wherein changes made during the transactional execution are not  
5 committed to the architectural state of the processor unless the transactional  
6 execution successfully completes; and  
7            if the fail instruction is encountered during the transactional execution,  
8                terminating the transactional execution without committing results  
9                of the transactional execution to the architectural state of the processor,  
10          wherein terminating the transactional execution involves branching to a  
11          location specified by the fail instruction or to a location specified by a start  
12          transactional execution (STE) instruction at the beginning of the  
13          transactional execution; or  
14                setting state information in the processor and continuing the  
15          transactional execution, wherein the processor handles the failure later.
  
- 1        2. (Original) The method of claim 1, wherein terminating the  
2 transactional execution involves discarding changes made during the transactional  
3 execution.

1           3. (Original) The method of claim 2, wherein discarding changes  
2 made during the transactional execution involves:  
3           discarding register file changes made during the transactional execution;  
4           clearing load marks from cache lines;  
5           draining store buffer entries generated during transactional execution; and  
6           clearing store marks from cache lines.

1           4-5. (Cancelled)

1           6. (Original) The method of claim 1, wherein terminating the  
2 transactional execution additionally involves attempting to re-execute the block of  
3 instructions.

1           7. (Currently Amended) The method of claim 1, wherein if the  
2 transactional execution of the block of instructions is-successfully completes, the  
3 method further comprises:  
4           atomically committing changes made during the transactional execution;  
5 and  
6           resuming normal non-transactional execution.

1           8. (Original) The method of claim 1, wherein potentially interfering  
2 data accesses from other processes are allowed to proceed during the transactional  
3 execution of the block of instructions.

1           9. (Original) The method of claim 1, wherein if an interfering data  
2 access from another process is encountered during the transactional execution, the  
3 method further comprises:  
4           discarding changes made during the transactional execution; and

5           attempting to re-execute the block of instructions.

1           10.       (Original) The method of claim 1, wherein the block of instructions  
2       to be executed transactionally comprises a critical section.

1           11.       (Original) The method of claim 1, wherein the fail instruction is a  
2       native machine code instruction of the processor.

1           12.       (Original) The method of claim 1, wherein the fail instruction is  
2       defined in a platform-independent programming language.

1           13.       (Currently Amended) A computer system that supports a fail  
2       instruction to facilitate transactional execution, comprising:  
3           a processor; and  
4           an execution mechanism within the processor;  
5           wherein the execution mechanism is configured to transactionally execute  
6       a block of instructions within a program;  
7           wherein changes made during the transactional execution are not  
8       committed to the architectural state of the processor unless the transactional  
9       execution successfully completes; and  
10          wherein if the fail instruction is encountered during the transactional  
11       execution, the execution mechanism is configured to  
12           terminate the transactional execution without committing results of  
13       the transactional execution to the architectural state of the processor,  
14       wherein terminating the transactional execution involves branching to a  
15       location specified by the fail instruction or to a location specified by a start  
16       transactional execution (STE) instruction at the beginning of the  
17       transactional execution; or to

18               set state information in the processor and continue transactional  
19               execution, wherein the execution mechanism is configured to handle the  
20               failure later.

1               14. (Original) The computer system of claim 13, wherein while  
2               terminating the transactional execution, the execution mechanism is configured to  
3               discard changes made during the transactional execution.

1               15. (Original) The computer system of claim 14, wherein while  
2               discarding changes made during the transactional execution, the execution  
3               mechanism is configured to:

4               discard register file changes made during the transactional execution;  
5               clear load marks from cache lines;  
6               drain store buffer entries generated during transactional execution; and to  
7               clear store marks from cache lines.

1               16-17. (Cancelled)

1               18. (Original) The computer system of claim 13, wherein while  
2               terminating the transactional execution, the execution mechanism is additionally  
3               configured to attempt to re-execute the block of instructions.

1               19. (Currently Amended) The computer system of claim 13, wherein if  
2               the transactional execution of the block of instructions is successfully completed,  
3               the execution mechanism is configured to:  
4               atomically commit changes made during the transactional execution; and  
5               to  
6               resume normal non-transactional execution.

1           20. (Original) The computer system of claim 13, wherein the computer  
2 system is configured to allow potentially interfering data accesses from other  
3 processes to proceed during the transactional execution of the block of  
4 instructions.

1           21. (Original) The computer system of claim 13, wherein if an  
2 interfering data access from another process is encountered during the  
3 transactional execution, the execution mechanism is configured to:  
4           discard changes made during the transactional execution; and to  
5           attempt to re-execute the block of instructions.

1           22. (Original) The computer system of claim 13, wherein the block of  
2 instructions to be executed transactionally comprises a critical section.

1           23. (Original) The computer system of claim 13, wherein the fail  
2 instruction is a native machine code instruction of the processor.

1           24. (Original) The computer system of claim 13, wherein the fail  
2 instruction is defined in a platform-independent programming language.

1           25. (Currently Amended) A computing means that supports that  
2 supports a fail instruction to facilitate transactional execution, comprising:  
3           a processing means; and  
4           an execution means within the processing means;  
5           wherein the execution means is configured to transactionally execute a  
6           block of instructions within a program;

7       wherein changes made during the transactional execution are not  
8 committed to the architectural state of the processor unless the transactional  
9 execution successfully completes; and

10       wherein if the fail instruction is encountered during the transactional  
11 execution, the execution means is configured to

12           terminate the transactional execution without committing results of  
13           the transactional execution to the architectural state of the processor,  
14           wherein terminating the transactional execution involves branching to a  
15           location specified by the fail instruction or to a location specified by a start  
16           transactional execution (STE) instruction at the beginning of the  
17           transactional execution; or to

18           set state information in the processor and continue transactional  
19           execution, wherein the execution means is configured to handle the failure  
20           later.